(Inter-Department Report)

BRISTOL BAY DATA REPORT NO. 47

SUBSISTENCE FISHING IN BRISTOL BAY

1963-1973

Updated by

Thomas R. Schroeder
Fishery Biologist

Alaska Department of Fish and Game
Division of Commercial Fisheries

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ABSTRACT

Subsistence catches of salmon for personal use and dog food have been recorded in Bristol Bay since 1963. The subsistence fishery is primarily centered around the Naknek-Kvichak and Nushagak drainages, expecially in the outlying villages. Catches in these two drainages have approached 100 to 170,000 salmon annually in the past, but has dropped below 100,000 in recent years due to the decreasing salmon runs and reliance on dogs for transportation. On a drainage-wide basis, the total harvest is well below available salmon stocks, but over-exploitation of several races of salmon has been observed and is of concern to the management staff.

Much of the text for the district summaries has been plagiarized from the 1969 data report with additions included for years 1970-1973.

INTRODUCTION AND BACKGROUND

Residents of the Bristol Bay area have historically taken large numbers of salmon for personal use and dog food. Since 1963, the Alaska Department of Fish and Game has monitored and maintained records of the subsistence harvests in the major river systems of the Bay. The subsistence requirements for a particular system may in certain years come close to the total return for that system and, therefore, becomes an important consideration in management of the commercial salmon fishery.

Undoubtedly, present day subsistence requirements are much less than in the past when a greater dependence upon natural resources existed for everyday living. The advent of the snow machine replaced the dog sled as a means of winter travel and resulted in a substantial decrease in fish need for dog food. Welfare and food stamp programs have also had an effect on the subsistence needs of the people in certain areas.

There are, however, areas in Bristol Bay were subsistence fish utilization is still important to the local inhabitants. The prime areas where significant subsistence fishing is still conducted are the Lake Iliamna-Lake Clark drainage and the Naknek River system in the Naknek-Kvichak district and the Nushagak and Togiak district drainages.

Subsistence fishing gear is almost exclusively set gill nets. Fishing usually takes place close to a village or shomesite, but ocassionally villagers travel to spawning areas and establish a camp to process their fish. Quite often

the gill nets are used as beach seines at these locations. Fish camps occur primarily in the Nushagak and Togiak drainages. Most fish taken are dried or smoked with a small number being salted, frozen or canned.

SUBSISTENCE REGULATIONS

Subsistence regulations prior to 1965 were essentially that: (1) a permit was required only in the Naknek River and that area less than 12 miles from waters open to commercial fishing in all districts except Togiak where no permit was required; (2) legal gear was limited to 50 fathoms of set gill net; and (3) salmon for subsistence purposes were not to be taken within a commercial fishing district during closed fishing periods.

Additional regulations governing subsistence fishing were promulgated in 1965. The new regulations required that permits be issued in all areas of Bristol Bay, set gill nets were restricted from fishing within 300 feet of a stream mouth utilized by salmon and that a minimum distance of 300 feet exist between nets.

Modification of the regulations occurred in 1967 when a portion of the Naknek River was closed to subsistence fishing and further restrictions were imposed in 1968 when subsistence fishing in the Naknek River was limited to one day per week with 10 fathoms of set gill net. Also, effective in 1968, was the closure of the Egegik and Ugashik Rivers to subsistence fishing during the emergency order period. The one day per week subsistence fishing period in the Naknek River was repealed in 1971.

METHODS OF DATA ANALYSIS

Although subsistence or personal use regulations were in affect for Bristol Bay since statehood, 1963 marked the first effort to collect catch data from those persons engaged in this fishery.

Methods of data collection and analysis differed by area. In the remote Iliamna-Lake Clark drainage, village surveys were conducted to estimate total subsistence harvest. On the Naknek River and Nushagak drainage, main reliance was placed on returns of subsistence permits. In the Nushagak drainage, and all

of Bristol Bay for that matter, subsistence fishermen were not aware that a permit was required and many commercial fishermen used fish caught during an open fishing period for subsistence purposes. It, therefore, became necessary for the Department to estimate the total family units or persons that participate in the fishery in areas where village surveys were not conducted. These estimates were derived from various sources and in the opinion of staff biologists are reasonable (Table 5). As the permit program became known to more subsistence fishermen, the number of persons acquiring permits increased (Tables 2, 4 and 6).

For those fishermen who did not return subsistence catch reports it was necessary to estimate the total subsistence catch by all permit holders by use of the following formula:

$$\frac{a}{b} = \frac{c}{x}$$

Where: a = No. of subsistence permit returned
b = Catch as reported on returned permits
c = No. of subsistence permit not returned
x = Catch for permits not returned

This method of data analysis was used only in the Nushagak drainage where an absence of adequate village surveys precluded their use in estimating total subsistence harvest.

Thus, there are four different sets of subsistence catch data: (1) total catches estimated from village surveys; (2) catches from returned permits; (3) estimated total catch from all permit holders; and (4) estimated total subsistence catch based on number of family units.

In several special cases the subsistence catches have been estimated by averaging catches from years when data was available.

The majority of the subsistence fishing effort takes place in the Naknek-Kvichak, Nushagak and Togiak districts. A summary by district follows along with a set of tables presenting the basic catch data.

NAKNEK-KVICHAK DISTRICT SUBSISTENCE FISHERY

by
Kenneth R. Middleton
Glen R. Van Valin
Thomas R. Schroeder

INTRODUCTION

Subsistence fishing has been recorded in the Naknek and Kvichak systems of Bristol Bay since 1963 in an effort to determine the total utilization of salmon in the Naknek-Kvichak district (Table 1). Data has been collected through the use of subsistence fishing permits and village surveys. Permits were issued primarily to subsistence fishermen in Naknek while surveys were conducted in the six villages of the Kvichak system. A permit system was finally established in the villages of the Kvichak system in 1970 and reports from these villages have been very consistent with past data (Table 3). A greater percentage of fish taken for personal use in the district is taken in the Kvichak system where the inhabitants are dependent on salmon for winter dog food as well as to augment their own diets. The residents of Naknek, in the Naknek section are almost entirely dependent on a cash income from commercial fishing and purchase much of their winter food and supplies from the cannery. Estimates of the subsistence harvest for the Naknek-Kvichak district based on eleven years of data suggests a total requirement of about 70,000 salmon, most of which will be red salmon (Table 1).

Naknek Section

Subsistence data for the Naknek section was obtained exclusively through the use of permits. Since 1963 was the first year that the permit system was used, it is believed that the number of permits issued was not a true indication of the actual number of subsistence fishermen. Therefore, an average of the permits issued between 1964-69 was used to further expand the 1963 subsistence catch (Table 2).

In 1968, subsistence fishing in the Naknek River was limited to one 24-hour period per week for the period June 26 through July 15. The reduction in fish-

ing time was necessary to reduce illegal fishing activities. The total Naknek section subsistence catch for all species was thus substantially reduced over previous years (Table 2).

The reduction in fishing time, first implemented in 1968, was enforced through 1970. The resulting depression in the over-all subsistence harvest necessitated the repeal of this regulation in 1971 and resulted in an increase of the subsistence catches (Table 2). In 1969 a record return of 88%, 65 of 74 issued permits, was obtained. Of the returned permits, 38% were not used, which resulted in the lowest estimated subsistence catch in the Naknek section since catches were first recorded in 1963. Many of the people feel it is not worth the time and effort to fish for one day a week and thus have been acquiring their subsistence fish during the open commercial season.

Kvichak Section

Village surveys were conducted in the Kvichak section from 1963 to 1969, except for 1965, by either Department personnel or staff members of the Fisheries Research Institute of the University of Washington. Permits have been issued since 1970 for collection of subsistence catch data.

The escapements to the Kvichak in 1963 and 1973 were unusually low, 338,760 and 226,554 respectively. Consequently, the subsistence catches for those years were not representative of the true subsistence requirements for this area (Table 1 & 3). No village survey was conducted in 1965 and an average of the catches for 1963-1969 were used as an estimate of the subsistence harvest for that year.

The estimated red salmon subsistence catch by village area is shown on Table 3. The people of Nondalton have harvested the largest number of salmon for subsistence purposes every year except 1973 and account for 46.7% of the annual average catch of 67,500 red salmon (Table 3).

1963

In late August a village survey of the Lake Iliamna-Lake Clark drainage was conducted by Department personnel to assess the subsistence utilization of salmon.

An attempt was made to enumerate all salmon through the use of smokehouse capacity, which was determined to be the limiting factor on the number of salmon caught. Many people quite fishing while salmon were still available, and it was discovered that other freshwater species caught through the ice in winter provided for considerable personal use and dog food requirements. During the Iliamna freshwater commercial fisheries investigations conducted in 1964, it was found that a large number of freshwater fish were utilized locally for subsistence purposes. It was determined that fish taken for personal needs constituted approximately 40 percent of the total commercial catch during the winter-spring fishery of 1964 (Metsker, 1967).

It was found that utilization of other species of fish for dog food varied considerably with location of the village. A total of six village and fish camps were visited. Several interviews were conducted in each village and actual counts were made in smokehouses whenever possible. It was discovered that very little fish were salted for personal use due to the high cost of salt, rather it was common practice to smoke fish for eating purposes.

Outlined below is a summary of the five major areas of subsistence fishing in the Lake Iliamna-Lake Clark drainage, plus an estimate for the Kvichak River village of Levelock, based on personal interviews with two residents of that village:

			Smokehouses		Subsistence Catch		
Village	No. Families	No. Dogs	No.	Capacity	Smoked	Salted	Total
Nondalton	34	200-300	20	50,000	6,000	1,400	7,400
Newhalen-Iliamna	40-50 people	80	9	25,000	-	-	8,500
Kokhonak	7-8	70	5	-	5,000	-	5,000
Pedro Bay	10	73	10	-	-	-	4,000
Iguigig	4	15	2	-	-	-	1,200
Levelock	9	15	2	-	-	-	600
						Total	26,700

The actual subsistence catch in this system for 1963 was estimated to be between 28,000 and 35,000 salmon or close to 10% of the total escapement (Table 3). Based on smokehouse capacity, the potential subsistence harvest would be approximately 120,000 fish.

A similar survey at a later date by personnel of the Fisheries Research Insititute produced an estimate of 56,000 salmon taken for personal use in 1963, or 17% of the total escapement (Kerns and Phinney, 1964). F.R.I. personnel farther reported the results of a similar survey in 1955 which resulted in an estimated personal use catch of 81,500 salmon, or 33% of the total escapement that year.

1964

Department personnel conducted a village survey on August 24-25, which covered three villages in the Iliamna-Lake Clark area. Subsistence fishing was still being carried on in most villages and the harvest data did not represent the total eventual catch. For those areas not surveyed, the subsistence catch has been interpolated using all other years when data was available (Table 3).

A summary of the village surveys conducted in 1964 is shown below:

Village	No. Families	No. Dogs	No. Smokehouses	Subsistence Catch
Nondalton	34	250+	26	9,200
Newhalen-Iliamna	12	-	9	7,100
Pedro Bay	10	-	-	8,300
			Total	24,600

Personnel of the Fisheries Research Institute also conducted a village survey and an estimate of 81,500 red salmon was reported caught for personal use (Phinney, 1965). F.R.I. further reported that there were 59 families fishing in 1964 and their total estimated personal use requirements were about 114,000 salmon.

1969

Door to door village surveys have been the main source of subsistence catch data since 1963. In 1969 a concerted effort was made to try and establish a permit system in the villages. Meetings were held in all villages, except Igiugig and Levelock, to explain the subsistence permit program. The meetings were generally well attended and interest was expressed by many of the people.

Accurate estimates of the number of family units that take subsistence fish, and the number of dogs for each village were acquired for the first time since 1963. If the permit system is faily successful, the family units can be used to more accurately estimate the total subsistence catch for the villages.

A new term, "nudilvie", which is the Native word for a spawned-out salmon, was used during the village surveys, and a total number of "nudilvie" was reported for each village. "Nudilvie" are entirely for personal use; whereas, the fresh salmon are used mainly for dog food. An average of 150 "nudilvie" were taken for each family unit in each village. Summarized on the following page are the data gathered on the village surveys:

Village	No. Dogs	No. Family Units	Subsistence Catch		
			Nudilvie	Fresh	Total
Nondalton	257	33	4,900	39,100	44,000
Newhalen-Iliamna	51	11	1,500	3,400	4,900
Kokhonak	127	11	3,600	11,400	15,000
Pedro Bay	19	10	1,100	3,100	4,200
Igiugig	39	5	-	5,100	5,100
		Totals	11,100	62,100	73,200

1973

The permit system has been very successful in the Lake Iliamna villages. Catches dropped considerably during 1972 and 1973 and were primarily due to the low escapements to the system. The number of permits issued each year has remained fairly stable between 80 and 96 annually.

The Naknek area showed a considerable increase in the number of permits issued in 1972 and 1973 (Table 2). A resulting increase in catch was not noticed

due to the extremely reduced runs in both years.

EGEGIK AND UGASHIK DISTRICTS SUBSISTENCE FISHERY

by Thomas R. Schroeder

Very little subsistence effort takes place in the Egegik and Ugashik districts. Most of the subsistence catch in these two drainages is utilized for personal use as dog teams are not prevalent on the Peninsula.

Since 1963, 25 permits have been issued in the Egegik district. Of these, only 10 were returned yielding a total catch of 298 reds, 3 kings and 110 coho salmon.

The Ugashik district has had 75 permits issued since 1963; none were issued in 1965. Of these, 56 or 75% were returned, indicating an average subsistence harvest of less than 1,000 salmon per year (Table 4).

Subsistence catches in the Ugashik district consist primarily of red and coho salmon. Pink, chum and king salmon spawn primarily in the King Salmon River drainage and are thus automatically eliminated for most catches due to the location of most of the subsistence nets on the Ugashik River above the mouth of the King Salmon River.

NUSHAGAK AND TOGIAK DISTRICTS SUBSISTENCE FISHERY

by Michael L. Nelson
Donald L. Siedelman
Darwin A. Biwer, Jr.
Thomas R. Schroeder

INTRODUCTION

Subsistence or personal use fishing in the Nushagak and Togiak districts is still carried on by most of the local inhabitants, especially in the upriver villages along the Nushagak River.

Although a major share of the population of this area is on a cash economy basis, especially the Dillingham area, most families still salt and smoke fish for personal use.

Subsistence utilization of salmon has been recorded in the Nushagak district since 1963, while 1965 marks the first year subsistence catch data was obtained from the Togiak area.

Nushagak District

Subsistence catch data is obtained by the permit system, with village surveys filling in additional information. Most permits are issued out of the Department's office in Dillingham, however, in most of the outlying areas the village postmasters have volunteered their services and have issued permits.

Permits issued by the postmasters in each village as well as the Dillingham office, are grouped into six sub-areas for data analysis:
(1) Nushagak Bay which includes fish taken at Dillingham, Kanakanak and Olsenville beaches, Clark's Point, Nushagak slough, Ekuk, Igushik beach and Lewis Point fish camps, (2) Wood River Lakes which includes fish taken at Aleknagik, (3) Manokotak and Igushik Lakes, (4) Ekwok, (5) New Stuyahok and (6) Koliganek.

Estimates of the subsistence harvest for the Nushagak district based on seven years of data suggests a total requirement of about 40 to 60,000 salmon, of which more than 60% will be red salmon.

A summary of the Nushagak district subsistence catches and effort is shown in Tables 1, 5 and 6.

1963

Subsistence permits were distributed on a trial basis in the Nushagak Bay area and of 71 permits issued 53 or 75% were returned with catch data (Table 6). The estimated total catch among all permit holders is shown in Table 6.

In an effort to estimate the total salmon take among all subsistence fishermen in the district, the number of family fishing units for each area was estimated (Table 5).

Subsistence catches were then interpolated for all sub-areas in 1963 using average catches and returns from permits returned during 1964-65 and number of family units. The catch records returned indicated a total probable subsistence harvest for the Nushagak district of approximately 57,200 salmon (Table 1).

1964

Subsistence fishing permits were again distributed on a trial basis in the Nushagak district and of 74 permits issued 49 or 66% were returned. In addition, the village of Manokotak turned in a total of 19 subsistence permits on a voluntary basis from an estimated 30 family units fishing. The estimated total catch among all permit holders is shown on Table 6.

The estimated number of family units fishing in each area was estimated from information supplied by local bush pilots, Department subsistence surveys and the Bureau of Indian Affairs (Table 5).

The total estimated subsistence catch for Nushagak Bay, Wood River Lakes and Manokotak was estimated from the 1964 returned permits. The subsistence catch for New Stuyahok, Koliganek, and Ekwok was based on returned permits from all years. Total subsistence salmon catch for 1964 was estimated to be 52,400 (Table 1).

Village surveys were conducted by Department personnel in 1964 and the following is a summary of those surveys:

Village	Family Units	No. Dogs	Estimated Sub. Needs	Remarks
Manokotak	35	30	6,000	Freshwater species taken: Char, whitefish and pike
Lewis Point	33	-	64,000	People from Ekwok, Stuyahok and Koliganek
Ekwok	14	131	14,000	1,100 cohos taken
New Stuyahok	27	-	62,000	Most fish caught at Lewis Pt.
Koliganek	16	176	-	

Under the new subsistence regulations in 1965 all subsistence fishermen in Bristol Bay were required to obtain a permit and report the catch at the end of the fishing season. Enforcement of the regulation was not asked and the permits were again returned on a voluntary basis. A total of 121 permits were issued in the Nushagak district with 88 or 73% returned.

The estimated total catch among all permit holders in the Nushagak district is shown on Table 6.

Partial returns from the up-river villages of Ekwok, New Stuyahok and Koliganek were used to estimate the total subsistence catch from the Nushagak-Mulchatna River area. The village of Manokotak on the Igushik River did not return subsistence catch permits and consequently the data in 1964 and 1966 was to estimate the catch, as this village takes a relatively consistent number of fish each year.

The number of family units fishing in each area was again estimated from information supplied from local bush pilots, village populations estimated by Western Alaska Airlines and Department subsistence surveys (Table 5). Total estimated subsistence catch for the Nushagak district in 1965 was 76,100 fish (Table 1).

1966

A total of 110 subsistence permits were issued in the Nushagak district during 1966 with 100 or 91% of the permits being returned on a voluntary basis.

The VISTA Volunteer Worker stationed at Manokotak issued and returned to the Department 24 subsistence permits. It was further substantiated by the village chief that Manokotak residents take between 150 and 200 red salmon per family each year for personal use. This take conforms with the Department estimates of total subsistence harvest.

The estimated total catch among all permit holders in the Nushagak district is shown on Table 6.

The number of family fishing units for each area was estimated from past returns and from Bureau of Indian Affair's field data on individual villages and is shown on Table 5.

The total estimated subsistence catch for the Nushagak area in 1966 based on catches from returned permits and number of family fishing units was 40,600 fish (Table 1).

1967

A total of 128 subsistence permits were issued in the Nushagak district during 1967 and 89 or 70% of the permits returned on a voluntary basis.

In all villages of the Nushagak district the postmaster distributed the subsistence permits to the people. The bulk of the permits were again issued out of the local Fish and Game office in Dillingham.

The estimated total catch among all permit holders in the Nushagak district is shown on Table 6.

The number of family fishing units for each area was estimated from past returns. The majority of subsistence fishermen from the villages of New Stuyahok and Koliganek move their fishing camps down to Nushagak Bay during the fishing season and hence their catches are reported in the Nushagak Bay area. Estimated family fishing units are shown on Table 5.

The total estimated subsistence catch for the Nushagak district in 1967 based on catches from returned permits and number of family fishing units was 57,400 fish (Table 1).

1968

In 1968, 115 subsistence permits were issued in the Nushagak district while 72% or 83 permits were returned. This was 13 permits less than in 1967.

The total estimated catches for all permits returned are shown in Table 6. The family unit estimate (Table 5) is made to encompass also, the catch of those persons who did not obtain subsistence permits. This count, which was estimated to be the same number as for 1967, has been obtained from aerial surveys and personal communications.

The total estimated subsistence catch for the Nushagak district by species for all family units in 1968 was 52,900 fish (Table 1).

1969

A total of 162 subsistence permits were issued in the Nushagak district in 1969 with 133 or 82% of the permits being returned. This was a record high number of permits and a 41% increase over 1968.

The total estimated catch by species for each area for all permits returned is shown on Table 6.

Permits were distributed to the fishermen in remote villages by the local postmasters, while the Department office in Dillingham continued to issue the bulk of subsistence permits.

The greatest increase in numbers of permits issued occurred in the Nushagak Bay area. This is attributed to the overall acceptance of the program by the people and the presence of a resident Protection officer. Another factor affecting the fluctuation of subsistence fishermen in Nushagak Bay is the annual turnover of teachers and hospital personnel in the Dillingham-Kanakanak area.

Due to this large increase of permits in the Nushagak Bay area, the family unit estimate was increased from 90 to 130. Family units for the village of New Stuyahok was increased from 2 to 5 due to the return of 5 permits from the village. All other villages remainded the same.

No permits were issued at the village of Koliganek as most of the people subsistence fish in Nushagak Bay during the summer. Past data (Table 6) indicates an average yearly subsistence catch of approximately 5,300 salmon, with the majority of these being red salmon.

The total estimated subsistence salmon catch for the Nushagak district by species for all family units in 1969 was 50,200 (Table 1).

1970-1973

The total number of subsistence permits issued each year during this period remained fairly constant except for a sharp increase of 29% occurring in 1973 (Table 6). This increase was due to the low red salmon runs and reduced commercial fishing time. The reduced fishing time meant lower income and the need for many of the fishermen to secure fish for subsistence purposes for the winter. Furthermore, many of the fishermen who normally obtained their subsistence fish from their commercial catches, had to resort to a subsistence permit to get their winter's supply of fish.

The 1970 and 1971 subsistence catches for the Nushagak district were slightly above the 11 year average of 52,700 with catches in 1972 and 1973 falling far below the average. The number of family units has changed in the Nushagak Bay area and the village of New Stuyahok since 1969. The change in the Nushagak Bay area in 1970 was a result of the extremely good fishing season and a reduction in the number of people requiring fish for subsistence purposes. Since 1970, the number of family units has increased due to the reduced commercial salmon catches and the increase in Federal, State and City government employees in the area. The sharp increase in the village of New Stuyahok was due to a shift in location of subsistence nets. Most of these people used to fish at the Lewis Point fish camps, but due to the reduced salmon runs, did not make the trip downriver and fished near the village instead.

FRESHWATER SUBSISTENCE FISHERY

Subsistence catches of freshwater fish species have been reported for the past two years from the village of Manokotak. A total of 68 permits were issued and 41 were returned. The estimated catch for all permits consisted of 124 rainbow trout, 2,280 whitefish, 219 grayling, 806 arctic char, 206 northern pike and 6 ling cod or burbot.

Char, whitefish and pike are also taken in the Wood River Lakes and in villages along the Nushagak River, with some lake trout being taken from the Tikchik Lakes by up-river villagers. Three freshwater subsistence permits were issued and returned for the Tikchik Lake area. Only one permit was used and reported a catch of 100 whitefish, 200 lake trout, 5 northern pike and 10 burbot. Additional data is not available for these areas, but an estimate by a village resident of the total freshwater subsistence catches for villages of the Nushagak River was 2-3,000 whitefish and 4-5,000 northern pike.

Plans are presently underway to gather data concerning the subsistence catches fo freshwater fish species by these villages.

TOGIAK DISTRICT SUBSISTENCE FISHERY

by Michael L. Nelson
Thomas R. Schroeder

Local inhabitants from the villages of Togiak and Twin Hills in Togiak Bay account for subsistence harvest in this area.

Due to the remoteness of Togiak drainage all efforts to obtain subsistence catches have been made through the village postmasters. Participation in the permit system has been poor, due primarily to a lack of understanding of subsistence regulations.

In 1965, the Department received 14 out of 36 permits issued in the Togiak area. The estimated total catch among all permit holders in the Togiak district was 8,600 salmon.

In 1969 only two permits were returned with reported catches of 133 reds, 19 kings, 60 chums, 17 pinks, 8 cohos for a total of 237 salmon. Issuing permits and getting returned catch data continues to be a problem in the Togiak area.

An interview with the village council president put a closer fix on the subsistence fishery requirements for the area. Very few king and red salmon are taken at the villages. Reds are taken primarily at the lake and about 10-15 families catch about 800-1500 fish per year. Coho salmon are the primary species of salmon taken for subsistence purposes with approximately 60-70 families catch-

ing less than 50 fish per family for an estimated catch of 1800-3500 cohos yearly. He estimated the salmon subsistence catch would run 5-10,000 each year.

The primary fish taken for subsistence purposes are the sea run dolly varden. They are fished from September through the winter to May with 2½" mesh gill net. Some catches run 200-300 lbs. per net and a very conservative estimate of over 100,000 char are taken annually from this drainage.

DISCUSSION

The monitoring of the Bristol Bay subsistence fishery is adequately reflecting the total subsistence requirements of salmon species in most areas. The Togiak district still remains to be a problem area and, although contacts with the postmistress and license vendor in the village have been made for issuing permits, no reliable data has been received.

The winter subsistence fisheries on freshwater species such as pike, whitefish, char and dolly varden have not been investigated or monitored. In certain areas, these catches tend to be very substantial on certain species and plans are presently being developed to gather data on the freshwater fishery requirements for the various villages.

ACKNOWLEDGMENTS

Data and information contained in this report have been collected by all members of the Bristol Bay staff from 1963 to the present time. The author has merely updated Data Report #19 to contain the period from 1970-1973 and most of the text prior to 1970 was taken verbatum from Data Report #19.

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TABLE 1. Summary of comparative subsistence catch of salmon for Bristol Bay by district and species, 1963-73.[1/]

Year	Catch by Species					
	Reds	Kings	Chums	Pinks	Cohos	Total
			NAKNEK-KVICHAK DISTRICT			
1963	61,700	500	100	+	400	62,700
1964	85,900	500	+	1,100	800	88,300
1965	71,900	500	100	+	300	72,800
1966	74,500	600	300	2,700	400	78,500
1967	68,500	500	100	+	500	69,600
1968	71,000	500	100	300	200	72,100
1969	76,300	400	100	+	400	77,200
1970	108,200	300	700	100	200	109,500
1971	66,400	200	+	+	100	66,700
1972	52,200	400	400	700	100	53,800
1973	41,600	600	300	+	500	43,000
Totals	778,200	5,000	2,200	4,900	3,900	794,200
11 Yr. Av.	70,700	500	200	1,000[2/]	400	72,800
			UGASHIK DISTRICT			
1963	300	+	100	+	600	1,000
1964	300	0	0	0	0	300
1965[3/]	-	-	-	-	-	-
1966	1,000	0	0	0	0	1,000
1967	700	+	100	+	500	1,300
1968	300	+	100	+	300	700
1969	100	0	0	0	200	300
1970	1,400	+	+	0	+	1,400
1971	300	0	+	0	100	400
1972	200	100	100	+	300	700
1973	200	+	100	+	600	900
Totals	4,800	100	500	+	2,600	8,000
10 Yr. Av.	500	+	100	+	300	900

TABLE 1. (continued)

Year	Catch by Species					
	Reds	Kings	Chums	Pinks	Cohos	Totals
			NUSHAGAK DISTRICT			
1963	41,200	3,600	8,500	+	3,900	57,200
1964	31,800	2,900	8,700	4,100	4,900	52,400
1965	47,500	4,600	18,400	200	5,400	76,100
1966	23,600	3,700	6,000	4,900	2,400	40,600
1967	34,900	3,700	14,000	800	4,000	57,400
1968	30,000	6,600	8,600	5,800	1,900	52,900
1969	27,700	7,100	8,200	100	7,100	50,200
1970	38,200	6,900	8,800	1,000	1,000	56,700
1971	42,400	4,400	4,200	+	2,300	53,200
1972	24,100	4,000	8,200	1,200	1,000	38,500
1973	28,000	6,600	7,600	100	2,200	44,500
Totals	369,400	54,100	101,200	19,000	36,100	579,700
11 Yr. Av.	33,600	4,900	9,200	3,800[2/]	3,300	52,700
			TOTAL BRISTOL BAY			
1963	103,200	4,100	8,700	+	4,900	120,900
1964	118,000	3,400	8,700	5,200	5,700	141,000
1965	119,400	5,100	18,500	200	5,700	148,900
1966	99,100	4,300	6,300	7,600	2,800	120,100
1967	104,100	4,200	14,200	800	5,000	128,300
1968	101,300	7,100	8,800	6,100	2,400	125,700
1969	104,100	7,500	8,300	100	7,700	127,700
1970	147,800	7,200	9,500	1,100	1,200	167,600
1971	109,100	4,600	4,200	+	2,500	120,300
1972	76,500	4,500	8,700	1,900	1,400	93,000
1973	69,800	7,200	8,000	100	3,300	88,400
Totals	1,152,400	59,200	103,900	23,100	42,600	1,381,900
11 Yr. Av.	104,800	5,400	9,400	4,600[2/]	3,900	128,100

1/ Subsistence fishing is insignificant in the Egegik and Ugashik districts of Bristol Bay, while preliminary data indicates that the Togiak district catches fall in the range of 15-20,000 salmon; catches rounded to nearest 100.

2/ Even year average.

3/ No permits issued.

TABLE 2. Summary of estimated subsistence catch of salmon by species in the Naknek section of the Naknek-Kvichak district, 1963-73.[1/]

Year	Number of Permits Issued	Returned	%	Subsistence Catch by Species Reds	Kings	Chums	Pinks	Cohos	Total
1963[2/]	50	33	66	3,900	500	100	+	400	4,900
1964	71	61	86	3,400	500	+	1,100	800	5,800
1965	64	32	50	2,400	500	100	+	300	3,300
1966	76	45	59	3,800	600	300	2,700	400	7,800
1967	68	43	63	4,900	500	100	+	500	6,000
1968	62	54	87	2,400	500	100	300	200	3,500
1969	74	65	88	2,100	400	100	+	400	3,000
1970	54	34	63	4,100	200	+	100	200	4,600
1971	57	38	67	6,300	200	+	+	100	6,600
1972	85	63	74	3,700	400	400	700	100	5,300
1973	114	83	73	2,500	600	200	+	500	3,800
Totals	775	551	-	39,500	4,900	1,400	4,900	3,900	54,600
11 Yr. Av.	70	50	71	3,600	400	100	1,000[3/]	400	5,500

1/ Catches rounded to nearest hundred. See Methods of Data Analysis.

2/ The average number of permits issued between 1964-69 was used to further expand the 1963 estimated subsistence catch.

3/ Even-year average.

TABLE 3. Summary of estimated red salmon subsistence catch by village in the Kvichak section of the Naknek-Kvichak district, 1963-73.[1/]

		Red Salmon Subsistence Catch by Village						
Year	Agency	Nondalton	Newhalen/ Iliamna	Kokhonak	Pedro Bay	Igiugig	Levelock	Tota
1963	A.D.F.G.	7,400	8,500	6,000	4,400	1,200	600	28,10
	F.R.I.	25,000	10,000	7,000	14,000	-	-	56,00
1964	A.D.F.G.	9,200	7,100	-	8,300	-	1,000[2/]	25,60
	F.R.I.	35,000	19,000	8,500	15,000	4,000	-	81,50
1965[3/]	A.D.F.G.	35,500	9,700	10,200	9,800	3,300	1,000	69,50
1966	A.D.F.G.	45,800	6,600	10,500	6,000	1,200	600	70,70
1967	A.D.F.G.	29,600	9,100	10,200	9,900	3,400	1,400	63,60
1968	A.D.F.G.	33,700	8,700	10,200[4/]	9,800[4/]	4,800	1,400	68,60
1969	A.D.F.G.	44,000	4,900	15,000	4,200	5,100	1,000[2/]	74,20
1970	A.D.F.G.	42,900	16,400	22,300	11,200	11,200	1,600[3/]	105,60
1971	A.D.F.G.	22,100	8,500	12,800	10,100	6,500	1,600[3/]	61,60
1972	A.D.F.G.	24,100	10,000	8,300	4,000	2,200	1,600[3/]	50,20
1973	A.D.F.G.	8,500	10,100	9,200	2,900	2,200	4,800	37,70
Totals[5/]		346,200	113,000	124,000	96,900	45,100	16,600	742,00
11 Yr. Av.		31,500	10,300	11,300	8,800	4,100	1,500	67,50

1/ Catches rounded to nearest hundred. See Methods of Data Analysis.

2/ No survey conducted, catch is interpolated using 1963, 1966-1968 average.

3/ No survey conducted, catches are interpolated using an average of the catches from 1963-1969.

4/ No survey conducted, catch is interpolated using 1963-64. 1966-67 and 1969 average.

5/ In years when both agencies (A.D.F.G. and F.R.I.) made catch estimates, the highest figure was chosen to compile the 7-year averages.

TABLE 4. Summary of estimated subsistence catch of salmon by species in the Ugashik district, 1963-73.[1/]

Year	No. of Permits Issued	Returned	%	Subsistence Catch by Species Reds	Kings	Chums	Pinks	Cohos	Total
1963	8	6	75	300	+	100	+	600	1,000
1964	2	1	50	300	0	0	0	0	300
1965[2/]	-	-	-	-	-	-	-	-	-
1966	4	4	100	1,000	0	0	0	0	1,000
1967	5	4	80	700	+	100	+	500	1,300
1968	8	6	75	300	+	100	+	300	700
1969	3	3	100	100	0	0	0	200	300
1970	9	4	63	1,400	+	+	0	+	1,400
1971	9	8	89	300	0	+	0	100	400
1972	13	9	69	200	100	100	+	300	700
1973	14	11	79	200	+	100	+	600	900
Totals	75	56	-	4,800	100	500	+	2,600	8,000
10 Yr. Av.	8	6	75	500	+	100	+	300	900

1/ Catches rounded to nearest hundred.

2/ No permits issued.

TABLE 5. Summary of estimated family subsistence fishing units by area and year, Nushagak District, 1963-73.

Year	Nushagak Bay	Wood River Lakes	Ekwok	New Stuyahok	Koliganek	Manokotak	Total
1963	90	15	10	8	10	30	163
1964	65	15	10	8	10	30	138
1965	95	16	10	8	10	30	169
1966	60	15	10	8	10	24	127
1967	90	15	10	2	3	30	150
1968	90	15	10	2	3	30	150
1969	130	15	10	5	3	30	193
1970	100	15	12	6	5	30	168
1971	115	15	10	6	5	35	186
1972	115	15	10	15	5	35	195
1973	140	15	10	20	5	35	225
Total	1,090	166	112	88	69	339	1,864
Average	99	15	10	8	6	31	169

TABLE 6. Summary of estimated subsistence catch of salmon by species and area among all permit holders in the Nushagak District, 1963-1973.[1/]

Year	No. of Permits Issued	Returned	%	Subsistence Catch by Species: Reds	Kings	Chums	Pinks	Cohos	Total
				Nushagak Bay					
1963	71	53	75	13,600	1,200	1,100	+	1,500	17,400
1964	58	37	64	7,200	800	200	1,400	2,600	12,200
1965	88	63	72	16,700	1,700	7,400	100	3,200	29,100
1966	53	52	98	4,100	1,800	400	2,100	600	9,000
1967	84	61	73	14,800	2,400	6,700	600	2,000	26,500
1968	86	64	74	11,100	3,900	3,300	3,400	1,100	22,800
1969	122	97	80	11,400	3,800	3,700	100	4,200	23,200
1970	92	82	89	22,800	3,500	5,300	1,300	400	33,300
1971	105	80	76	13,300	2,000	700	0	500	16,500
1972	106	93	88	8,100	1,600	1,200	300	500	11,700
1973	137	123	90	10,900	4,000	2,700	100	1,600	19,300
Total	1,002	805	-	134,000	26,700	32,700	9,400	18,200	221,000
11 Yr.Av.	91	73	80	12,200	2,400	3,000	1,900	1,700	20,100
				Manokotak					
1964	19	19	100	5,300	100	+	100	600	6,100
1966	24	24	100	5,700	200	100	100	1,000	7,100
1967	30	21	70	9,100	100	+	100	1,600	10,900
1968	12	7	58	3,200	100	+	0	400	3,700
1969	24	24	100	5,100	100	100	+	900	6,200
1970	26	25	96	7,400	100	200	+	400	8,100
1971	32	20	63	6,600	100	0	+	1,200	7,900
1972[3/]	34	17	50	3,400	+	+	+	400	3,800
1973	34	24	71	4,000	100	+	+	500	4,600
Total	235	181	-	49,800	900	400	300	7,000	58,400
9 Yr. Av.	26	20	77	5,500	100	+	100[2/]	800	6,500
				Ekwok					
1965	8	7	87	3,300	400	1,500	+	500	5,700
1966	10	9	90	2,300	500	2,200	1,200	200	6,400
1967	8	5	63	3,600	500	5,000	+	100	9,200
1968	9	8	89	6,400	800	2,500	500	+	10,200
1969	9	6	67	5,400	1,800	2,800	0	600	10,600
1970	11	10	91	6,000	1,900	2,700	+	100	10,700
1971	9	9	100	7,500	800	1,000	+	100	9,400
1972	8	7	88	2,700	900	1,700	100	0	5,400
1973	8	7	88	3,700	900	2,200	+	100	6,900
Total	80	68	-	40,900	8,500	21,600	1,800	1,700	74,500
9 Yr.Av.	9	8	89	4,500	900	2,400	500[2/]	200	8,300

TABLE 6. (continued)

Year	No. of Permits Issued	Returned	%	Subsistence Catch by Species Reds	Kings	Chums	Pinks	Cohos	Total
				New Stuyahok					
1965	3	1	33	1,300	+	300	0	0	1,600
1966	6	1	17	400	200	100	200	0	900
1967	1	1	100	1,000	+	0	0	0	1,000
1968	2	2	100	500	200	100	200	0	1,100
1969	5	5	100	300	200	200	+	100	800
1970	6	6	100	1,600	600	700	100	+	3,000
1971	6	4	67	5,000	500	100	+	0	5,600
1972	15	6	40	4,300	700	1,600	300	100	7,000
1973	19	16	84	4,300	900	1,300	+	+	6,500
Totals	63	42	-	18,700	3,300	4,400	800	200	27,500
9 Yr. Av.	7	5	71	2,100	400	500	200[2/]	+	3,100
				Koliganek					
1965	6	3	50	4,800	1,300	4,600	0	100	10,800
1966	8	6	75	4,300	500	2,300	700	400	8,200
1967	1	1	100	300	100	300	+	0	700
1968	1	1	100	600	100	300	400	+	1,400
1969	0	0	0	0	0	0	0	0	0
1970	4	3	75	2,100	200	500	100	+	2,900
1971[4/]	3	2	67	2,000	400	1,300	0	100	3,800
1972	3	1	33	2,000	300	1,900	300	+	4,500
1973	4	4	100	2,100	300	500	0	0	2,900
Totals	30	21	-	18,200	3,200	11,700	1,500	600	35,200
9 Yr. Av.	3	2	67	2,000	400	1,300	400[2/]	100	3,900
				Wood River					
1964	16	11	69	4,100	+	+	200	200	4,500
1965	16	11	81	5,800	100	+	+	100	6,000
1966	9	8	89	3,000	0	100	+	+	3,100
1967	4	1	25	1,000	0	0	0	0	1,000
1968	5	2	40	1,200	0	0	+	0	1,200
1969	2	1	50	800	+	+	+	100	900
1970	8	7	88	1,200	0	+	+	+	1,200
1971[5/]	9	6	67	2,400	+	+	0	100	2,500
1972	2	2	100	100	0	0	0	0	100
1973	14	12	86	1,000	+	+	0	+	1,000
Totals	85	63	-	20,600	100	100	200	500	21,500
10 Yr.Av.	9	6	67	2,100	+	+	+	100	2,200

TABLE 6. (continued)

Year	No. of Permits Issued	Returned	%	Subsistence Catch by Species Reds	Kings	Chums	Pinks	Cohos	Total
				Nushagak District					
1963	71	53	75	13,600	1,200	1,100	+	1,500	17,400
1964	74	49	66	16,800	900	200	1,600	3,400	22,900
1965	121	88	73	32,200	3,400	14,000	200	4,100	53,900
1966	110	100	91	19,900	3,300	5,300	4,300	2,200	35,000
1967	128	89	70	29,800	3,100	12,000	700	3,700	49,300
1968	115	83	72	23,000	5,000	6,200	4,500	1,400	40,100
1969	162	133	82	23,000	5,900	6,800	100	5,900	41,700
1970	147	132	90	41,000	6,200	9,400	1,600	900	59,100
1971	164	121	74	36,800	3,800	3,100	+	2,000	45,700
1972	168	126	75	20,600	3,500	6,400	1,000	1,000	32,500
1973	216	186	86	26,000	6,200	6,700	100	2,200	41,200
Total	1,476	1,160	-	282,700	42,500	71,200	14,100	28,300	438,800
11 Yr.Av.	134	105	78	25,700	3,900	6,500	1,300	2,600	39,900

1/ Catches rounded to nearest hundred.

2/ Even year average only.

3/ 600 spawned out red salmon taken in addition to figures listed.

4/ Six year average from 1965-1970 and zero pink catch due to odd year run.

5/ Seven year average from 1964-1970 and zero pink catch due to odd year run.